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ABSTRACT

The Peabody Picture Vocabulary Test (PPVT) was compared to the Wechsler Intelligence Scale for Children, Revised (WISC-R) in a sample of 30 children with reading disabilities who had been referred to a university clinic. All the children completed the WISC-R; nineteen children completed Form A and eleven children completed Form B of the PPVT. All the children took the tests within a three-week period. The PPVT Form A IQ scores were significantly higher than the WISC-R Verbal IQ, Performance IQ, and Full Scale IQ scores. The PPVT Form B IQ scores were significantly higher than the WISC-R Verbal IQ scores, but not significantly higher than the WISC-R Performance IQ or Full Scale IQ scores. In one case, the PPVT IQ was 43 points higher than the WICS-R IQ. Correlations between the PPVT Form A and WISC-R Verbal, Performance, and Full Scale IQs were moderately significant. Correlations between the PPVT Form B and the WISC-R were not significant. Results suggest that the two tests do not provide interchangeable IQs for reading disabled children. (Author/RL)

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Relationship between PPVT and WISC-R in Children with Reading Disabilities

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Abstract

The Peabody Picture Vocabulary Test (PPVT) was compared to the Wechsler Intelligence Scale for Children-Revised (WISC-R) in a sample of 30 children with reading disabilities who had been referred to a university clinic. In one group (N = 19) Form A of the PPVT and the WISC-R were compared, while in another group (N = 11) Form B of the PPVT and the WISC-R were compared. All children had been administered the tests within a four-week period. The PPVT Form A IQ ($\bar{X}$ = 106.6) was significantly higher than the WISC-R Verbal IQ ($\bar{X}$ = 88.7), Performance IQ ($\bar{X}$ = 99.0), and Full Scale IQ ($\bar{X}$ = 92.8). The PPVT Form B IQ ($\bar{X}$ = 101.8) was significantly higher than the WISC-R Verbal IQ ($\bar{X}$ = 86.3), but not significantly higher than the WISC-R Performance IQ ($\bar{X}$ = 99.0) or the WISC-R Full Scale IQ ($\bar{X}$ = 91.4). In one case the PPVT IQ was 43 points higher than the WISC-R IQ. Correlations between the PPVT Form A and WISC-R Verbal, Performance, and Full Scale IQs were moderately significant (rs = .55, .49, and .55, respectively). Correlations between the PPVT Form B and the WISC-R were not significant. Results suggest that the two tests do not provide IQs that are interchangeable with reading disabled children.

Relationship between PPVT and WISC-R in Children with Reading Disabilities

The comparability of IQs generated by the Wechsler Intelligence Scale for Children-Revised (WISC-R) and the Peabody Picture Vocabulary Test (PPVT) has received considerable attention. Studies report that the two scales are not usually interchangeable. Correlations between the PPVT and WISC-R range from -.11 to .63 (Covin, 1976, 1977a, 1977b; Vance, Pritchard, & Wallbrown, 1978) for educable mentally retarded children. With a juvenile psychiatric population a correlation of .78 has been reported (DeHorn & Klinge, 1978). In each of these studies the PPVT yielded IQs that were on the average 3 to 7 IQ points higher than the WISC-R.

In a population of high SES normal children the PPVT yielded IQs that were on the average 2 IQ points higher than the WISC-R, with an r = .82; while with normal low SES children the PPVT IQ was on the average 5 points lower, with an r = .74 (Appelbaum & Tuma, 1977). Ethnicity also appears to affect differentially mean differences between the WISC-R and PPVT. In a sample of children referred for special education (Richmond & Long, 1977), black children showed a smaller discrepancy between the two scales than white children (IQs of 70 vs. 72 and 87 vs. 79 on the PPVT and WISC-R, respectively). In view of these findings the authors suggested that when the PPVT is used as a screening measure for special education placement, black children are more likely to be selected for further evaluation than are white children, although WISC-R IQs would show both groups to be equally in need of special services.

In a population of middle income learning disabled children (Vance, Lewis, & DeBell, 1979) the PPVT yielded IQs ($\bar{X}$ = 95) that were on the average 7 points higher than the WISC-R ($\bar{X}$ = 88), with an r = .40. The authors reported a discrepancy of 22 points in the case of one student (PPVT IQ = 92, WISC-R IQ = 70), and they suggested that discrepancies this large could lead to gross misinterpretation in individual cases. In view of the findings reported above, further replication appears warranted with even more distinctly defined populations of educationally handicapped children.

This report provides additional information about the relationship between the PPVT and the WISC-R in a sample of children who had been referred to a university clinic for assessment of reading deficits. Further study of the relationship between these two tests in a reading disabled population is needed since both tests enjoy wide popularity in educational centers. Because of the ease in administration and scoring, the PPVT may be employed as the sole measure of intellectual ability, particularly in centers where access to trained psychometrists or psychologists is limited. Increasing economic restrictions in the school setting may make such easily administered tests even more popular. Thus, it becomes necessary for professionals in the field of educational assessment to evaluate IQs generated by the PPVT as compared to IQs generated by tests, such as the WISC-R, which are based on a variety of cognitive processes.

Method

Subjects

Records of children who were seen for the assessment of reading disability at a university learning diagnostic center between the years of 1975 to 1978

were reviewed. Every child seen during this time period who was diagnosed as reading disabled and who had been tested on the WISC-R and the PPVT within a four-week interval was included in the sample. There were 30 such children, 21 males and 9 females. The sample consisted of middle to lower middle class children (as determined by parental occupation) who were from a large urban community; they were predominantly Anglo (25 Anglo, 2 Black, 2 Mexican-American, and 1 native American).

The two tests were administered by trained graduate students assigned to the clinic, with the WISC-R given by psychology students and the PPVT by special education students. In each case, two different examiners administered the two tests, having no knowledge of the results of the other testing. In 24 of the 30 cases, the WISC-R was administered prior to the PPVT. In most cases the two tests were given within a one-week period ($\overline{X}$ = 5.11 days), and in no case did the interval exceed one month. Examiners were encouraged by their supervisors to alternate giving Form A and B throughout the semester. The choice of form, therefore, was left to the individual clinician's discretion.

Since both Forms A and B of the PPVT had been administered, separate statistical analyses for each form were conducted. The comparison of PPVT Form A with the WISC-R was based on 19 children, 12 males and 7 females, who ranged in age from 6 years, 9 months to 13 years, 7 months ($\overline{X}$ age of 9 years, 5 months). There were 11 children, 9 males and 2 females, who had been administered both the PPVT Form B and the WISC-R. They ranged in age from 7 years, 1 month to 15 years, 10 months ($\overline{X}$ age of 11 years, 9 months).

Statistical Analyses

The PPVT IQ, the 10 standard WISC-R subtest scaled scores, and the WISC-R Verbal, Performance, and Full Scale IQs were the measures used in this study. Correlations were obtained between the WISC-R scores and PPVT IQs. In addition, a one-way repeated measures analysis of variance design was used to evaluate differences among the three WISC-R IQs and the PPVT IQ.

Results

Significant positive correlations were found between the PPVT Form A and WISC-R Full Scale, Verbal Scale, and Performance Scale IQs, with *rs* equal to .55, .49, and .55, respectively. Five WISC-R subtests—Similarities, Vocabulary, Comprehension, Object Assembly, and Block Design—were also significantly related to the PPVT IQ (*rs* ranging from .50 to .61). Significant correlations were not found between WISC-R Verbal, Performance, and Full Scale IQs and PPVT Form B IQs, with *rs* equal to .41, .42, and .53, respectively.

Insert Table 1 about here

A one-way within groups analyses of variance indicated that the four IQs (WISC-R Verbal, Performance, and Full Scale and PPVT A IQ) differed significantly. A Newman-Keuls test indicated that the PPVT Form A $\bar{X}$ IQ of 106.6 was significantly higher than the WISC-R Verbal, Performance, and Full Scale $\bar{X}$ IQs (88.7, 99.0, and 92.8, respectively). A second analysis of variance using PPVT Form B IQs also indicated differences among the four IQs. A Newman-Keuls test indicated that the PPVT Form B $\bar{X}$ IQ of 101.8 was significantly

higher than the WISC-R Verbal $\bar{X}$ IQ of 86.3, but not significantly higher than WISC-R Performance Scale ($\bar{X}$ = 99.0) or WISC-R Full Scale IQs ($\bar{X}$ = 91.4).

Insert Table 2 about here

In addition to the statistical analyses, the range of difference in IQs for the two tests was compared. Discrepancies between the WISC-R Full Scale IQs and the PPVT IQs were dramatic. In those cases in which the WISC-R was higher than the PPVT, the range of discrepancies was from 4 to 33 points. When the PPVT was higher than the WISC-R, the range of discrepancies was from 1 to 43 points. When the PPVT yielded higher IQs than the WISC-R the three largest discrepancies were 43, 30, and 27 points. In the three cases where the highest scores were WISC-R IQs, the discrepancies were 33, 8, and 6 points. Thus not only were there significant mean differences between the WISC-R and PPVT, but, in addition, the range of discrepancies was great.

Discussion

The results of this study clearly show that PPVT IQs are not interchangeable with WISC-R IQs in a sample of reading disabled children. The finding that the PPVT yielded higher IQs on the average than did the WISC-R supports the results obtained with a learning disabled population (Vance et al., 1979). One of the most striking findings of this study was the wide range of discrepancies between the PPVT and the WISC-R Full Scale IQs. Differences as great as 43 points were noted, with the PPVT IQ exceeding that of the WISC-R. Again, this replicates results obtained with learning disabled children (Vance et al., 1979), supporting the contention that the IQs provided by these two

tests are at times widely discrepant.

In addition, since Form A of the PPVT yielded a pattern of correlations with the WISC-R different from that of Form B, the two PPVT forms may have properties that subtly differ, at least for a reading disabled population. Although no differences were found between the two forms in a normal population when SES level was controlled (Appelbaum & Tuma, 1977), further research is needed to study differences between the two forms in special populations.

The results of this study suggest that PPVT and WISC-R IQs should not be considered interchangeable in a reading disabled population. This conclusion, as other research has shown, is also applicable to other special groups of children including ethnic minorities (Richmond & Long, 1977), educationally handicapped (Covin, 1976, 1977a, 1977b), learning disabled (Vance et al., 1979), mentally retarded (Vance et al., 1978), and juvenile psychiatric patients (DeHorn & Klinge, 1978).

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Table 1

Correlations, Means, and Standard Deviations for WISC-R Subtests and Scales and PPVT Forms A and B

	WISC-R and PPVT (A)			WISC-R and PPVT (B)		
Variable	r	M	SD	r	M	SD
Information	.22	7.37	3.64	-.03	8.09	2.07
Similarities	.55*	8.89	3.14	.43	7.73	3.87
Arithmetic	.34	7.47	3.22	.21	6.91	2.12
Vocabulary	.51*	8.42	3.52	.13	7.36	3.32
Comprehension	.50*	9.37	3.32	.50	9.09	2.59
Picture Completion	.38	10.53	2.46	.17	11.09	2.59
Picture Arrangement	.44	10.00	4.06	-.01	10.36	1.36
Block Design	.61**	10.16	3.62	.40	9.36	1.86
Object Assembly	.53*	10.53	3.17	.73*	10.45	2.25
Coding	.36	8.26	3.62	-.23	8.73	2.15
WISC-R Verbal IQ	.49*	88.74	17.99	.41	86.27	11.62
WISC-R Performance IQ	.55*	99.00	19.01	.42	99.00	6.77
WISC-R Full Scale IQ	.55*	92.79	18.93	.50	91.36	7.93
PPVT IQ	—	106.57	14.95	—	101.80	18.61

*$p < .05$.

**$p < .01$.

Table 2

ANOVAs for WISC-R and PPVT IQs

	WISC-R and PPVT (A)			WISC-R and PPVT (B)		
	df	MS	F	df	MS	F
IQs	3	1149.90	12.91**	3	522.18	5.87**
Residual	54	89.08		30	89.93	

**p <.01.